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forms ; but I suppose they have not been systematically attended to. Their extreme liability to black-knot and other attacks renders them for the present unpromising.

Finally, if pomology includes nuts, there is a promising field uncultivated. Our wild chestnuts are sweeter than those of the old world ; it would be well to try whether races might not be developed with the nuts as large as *marrons* or Spanish chestnuts, and without diminution of flavor. If we were not too easily satisfied with a mere choice among spontaneous hickory nuts, we might have much better and thinner shelled ones. Varying as they do excessively in the thickness of the shell and in the size and flavor of the kernel, they are inviting your attention, and promising to reward your care. The pecan is waiting to have the bitter matter between the shell and the kernel bred out ; the butternuts and black walnuts to have their excess of oil turned into farinaceous and sugary matter, and their shells thinned and smoothed by continued good breeding ; when they will much surpass the European walnut.

All this requires time, almost unlimited time ; but it is not for those who are enjoying the fruits which it has taken thousands of years to perfect, to refrain from the good work which is to increase the enjoyments of far future generations.—ASA GRAY, in *Horticulturist*.

ZOOLOGY.

CAPTURE OF A GIGANTIC SQUID AT NEWFOUNDLAND.—We print the following letter from Mr. Murray, of the Canadian Geological Survey, kindly forwarded to us by Professor Agassiz shortly before his death :—

ST. JOHN, NEWFOUNDLAND, NOV. 10, 1873.

My Dear Sir :—The following account of a remarkable marine monster, which made its appearance off the shores of this island, and of a severed arm or tentacle of the same, now in my possession, will I dare say be interesting to you, and also to Prof. Agassiz, to whom I should like to offer it.

On or about the 25th of October last, while a man by the name of Theophilus Picot was engaged at his usual occupation of fishing, off the eastern end of Great Bell Island in Conception Bay, his attention was attracted to an object floating on the surface of the water, which at a distance he supposed to be a sail, or the *débris* of some wreck, but which proved upon nearer inspection to be endowed with life. Picot, on observing that the object was alive, to

satisfy his curiosity pushed his boat alongside, and I believe struck at it with an oar or boat-hook, whereupon the creature's fury seemed to be aroused, and it struck at the bottom of the boat with its beak, and immediately afterward threw its monstrous tentacles over the boat, which probably it might have dragged to the bottom had not Picot with great presence of mind severed one (or more) of the tentacles with his axe. A part of this tentacle or sucking arm I have now in my possession, immersed in spirits. I send you with this letter a couple of photographs of the said tentacle and a few of the small denticulated sucking cups, all of which I hope will reach you safely.

Picot's description of this great squid, cuttle or devil-fish is this. He represents the body of the animal to have been about sixty feet long, and its general diameter as not less than five feet. The breadth of the tail he represents as at least ten feet. He states that when the creature found itself mutilated it made off backwards or tail foremost, after the manner of squids, darkening the water over a large space with inky emissions. The enormous proportions given above might appear to be exaggerations, were they not to a great extent borne out by the fragment of the animal which was severed, and of which the photograph will give you a fair idea. The tentacle measured on the 31st of October, when I first saw it, after it had been several days in strong brine and shrunk in consequence, seventeen feet; but was said to have measured nineteen feet previously. When it was first landed at a place called Portugal Cove, in Conception Bay and within nine miles of St. John, some six feet was cut off the inner end of this arm, and Picot asserts that the original incision was at least ten feet from its articulation with the body. Accordingly the whole length of the said arm must have been from thirty-three to thirty-five feet. The beak or bill of the creature Picot described as being about the size of a six gallon keg.

The Rev. Mr. Gabriel now residing at Portugal Cove, but who formerly resided at a place called Lamalein on the south coast of the island, states that, in the winter of 1870 and 1871, two entire cuttle or devil-fish were stranded on the beach near that place, which measured respectively forty and forty-seven feet.

The man Picot says he saw the animal very distinctly for some time after it had been mutilated, swimming stern foremost with its tail above the water's edge, and that its general color was a pale pinkish, resembling that of the common squid.

The following is an exact copy of the memoranda I made on first inspecting this remarkable tentacle on the 31st of October. The total length of the fragment from the last incision to the extremity, seventeen feet. The extremity of the arm or terminating two and one-half feet is flattened, and somewhat in shape like a narrow paddle, tapering toward the end to a sharpish point. The

thickest part of this terminal appendage is about six inches in circumference.

The inner fourteen and one-half feet is rounded in form, varying in thickness from three and one-half to four inches in diameter, or about the size of an ordinary man's wrist. On what I shall call the ventral side of this fourteen and one-half feet, there is a set of small tubercles or mammillary processes, which, at the end nearest the articulation, are about two feet apart, but become much closer and more numerous towards the extremity. Some small valve-like sucking denticulated cups are distributed along the area near the tubercles. Examples of these you will find in the small pill-box.

At the extreme point of the paddle-shaped extremity, and also at its junction with the rounded part, there is a cluster of small

denticulated sucking cups, each cluster containing from fifty to seventy individual cups. The smallest of these is not larger than the head of a pin. The broad paddle-like part between the two clusters is armed with a double row, twelve in each, of gigantic suckers, without teeth, each individual measuring about one and one-fourth inches in diameter.

A section across the middle part of the arm is of the following form, somewhat flattened (Fig. 44).

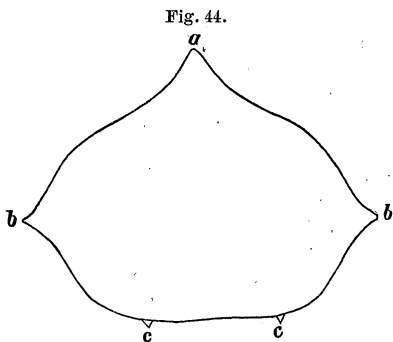


Fig. 44.
a, dorsal ridge; b, flanges of thin membranes; c, ventral tubercles.

The whole tentacle, as coiled up for the photograph, measured two feet, four and one-half inches on the longer diameter. The photograph is one-fourth the natural size.

Hoping I have made myself intelligible and that I may hear from you shortly what Agassiz says about the singular creature, I am, my dear sir, yours very truly,

ALEX. MURRAY."

The following second letter from Mr. Murray to Prof. Agassiz seems to refer to another individual, but much smaller:—

"I send you with this two photographs of the creature in question, one being the head and tentacles, the other the body. The latter part has unfortunately been a good deal mutilated while being extricated from the net in which it was caught. The head was cut off and the eyes destroyed, but I hope you will find the remainder sufficiently well preserved for description and restoration.

My own descriptive memoranda are as follows:—Caught at Logia Bay, near St. John, Newfoundland, Nov., 1873. Total

length of body seven feet, circumference five feet, tail fan-shaped, pointed at the middle extremity, and between extremes of extended appendages measures upwards of two feet. Two tubes run the whole length of the body, one of which contains the inky fluid, the other water. The eyes of this individual have been destroyed, but the socket of one is attached to the neck, the diameter of which is four inches. In the centre of the head, there is a powerful beak of black and orange color. In shape the beak exactly resembles a parrot's.

Around the head there are eight large arms each from six to seven feet in length: two of which are nine inches in circumference; two of eight inches; and five of seven inches. These tentacles are covered with suckers on the lower side for their whole length, all denticulated, about one hundred sucking cups upon each arm. There are also two long slender tentacles, each measuring twenty-four feet in length, the average circumference of the rounded part of which is under three inches. The extremities of these longer tentacles are paddle-shaped, and armed with about eighty denticulated suckers. In this case both the greater and the smaller suckers are armed with teeth.

Photographs taken by Messrs. Parsons and McKenna, St. John, on Tuesday, Dec. 2, 1873. A very respectable person, by the name of Pike, informs me that he has seen many of these gigantic squids upon the coast of Labrador; and that he measured the body of one eighty feet from beak to tail. He also states, that a certain Mr. Haddon, a school inspector of this place, measured one ninety feet. He tells me, moreover, that the monsters are edible.

The man Piçot who produced the first specimen of a tentacle, stated to Mr. Harvey that he had his boat alongside of the animal; that the boat was twenty feet long, and, as near as he could judge, it was about one-third the entire length of the creature's body."

[We would refer our readers to an account of colossal cuttle-fishes on p. 87 of vol. vii of this journal, and the notice of *Architeuthis dux* found in the North Atlantic. Professor Verrill of Yale College writes us that he has received both jaws and two suckers of the Newfoundland cuttle-fish. The beak, he says, agrees nearly with the figure of that of *A. dux*, on p. 93, of vol. vii, but the jaws are somewhat larger, he thinks.—EDS.]

A NEW (?) ÆGERIAN MAPLE BORER.—In the description of a supposed new maple borer, on page 57 of the January number, I recognize an old acquaintance which vies with *Chrysobothris femorata* in killing the shade maples of the Mississippi Valley, and which is not unfrequently found in the eastern states. I have been familiar with its work for nine years, and it has long been

known as *Ægeria acerni* Walker (*Trochilium acerni* Clem.).—C. V. RILEY, *St. Louis, Jan. 20, 1874.*

THE ANATOMY OF WORMS.—Claparède's elaborate posthumous work with fifteen plates, on the anatomy of the sea worms, appears in the "Mémoires de la Société de Physique et d'Histoire Naturelle of Geneva.

GEOLOGY.

THE N. W. WYOMING EXPEDITION.—The summer of 1873 is noted for the number of expeditions which were organized for the purpose of explorations in the territories, and the almost uniform success which has resulted, from a scientific point of view. Among all of these none has perhaps attracted so little attention as the small band which quietly set out from Omaha on the second day of last June, with the purpose of accomplishing, with the smallest possible appropriation, what three successive parties, led by the most intrepid and daring explorers of the western country, had pronounced impossible.

This expedition, in a tour of some eight or nine hundred miles, made a careful topographical, geological and botanical survey of a large portion of unexplored territory in N. W. Wyoming, adjacent to the National Park, and connected the whole with the work of previous explorers by a complete reconnoissance of the park itself. The principal geological results have already been published in outline,* and the writer has prepared a paper for the *NATURALIST*, relating more especially to the features of the Yellowstone Park, I must therefore content myself, in this place, with a very brief account of the most important results of the expedition.

Besides the unravelling, in a great measure, of the complicated mountain system of the great central water-shed of North America, the head waters of the three great rivers which here diverge, as from a focal point,† were explored and mapped, and several new passes were discovered, through the rugged walls of the Sierra Shoshone‡ mountains. After a successful tour of the whole of the reserved tract, during which ample collections were made, the party ascended the valley of the Upper Yellowstone River, rediscovering the "Two Ocean Water" of Lewis and Clarke, which has

*American Journal of Science, December, 1873.

†Missouri, Colorado, and Columbia rivers.

‡Name given by Capt. W. A. Jones, commander of the expedition, to the snow-clad walls upon the east of the Yellowstone Lake.